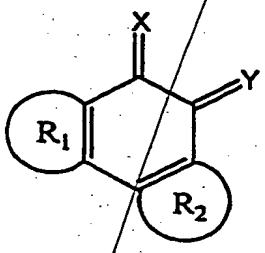
1. (Once amended) A single use disposable electrode strip for attachment to the signal readout circuitry of a sensor system to detect a current representative of an analyte in an aqueous sample, the strip comprising:

a) an elongated support having a substantially flat planar surface, adapted for releasable attachment to said readout circuitry;

b) a first conductor extending along said surface and comprising a conductive element for connection to said readout circuitry;

an active electrode on said surface in contact with said first conductor, said active electrode comprising a nicotinamide co-factor-dependent enzyme, a nicotinamide cofactor, and a mediator compound having the following formula:



where X and Y can independently be oxygen, sulphur, CR^3R^4, NR^3, or NR^3R^4 or the functional group CZ^1Z^2, where Z^1 and Z^2 are electron withdrawing groups; R_1 is a six-membered unsubstituted or substituted heteroaromatic ring having nitrogen in the 1-position and R_2 is a six-membered unsubstituted or substituted heteroaromatic ring having nitrogen in the 10-position; and R^3 and R^4 can independently be a hydrogen atom, a hydroxyl group or a substituted or unsubstituted alkyl, aryl, heteroaryl, amino, alkoxyl, or aryloxyl group, wherein said active electrode is formulated with filler and binder ingredients;

c) a second conductor extending along said surface, comprising a conductive element for connection to said readout circuitry;

d) a reference/counter electrode in contact with said second conductor;

e) said conductors being spaced apart so as not to be in electrical contact and being configured so as not to be brought into electrical contact when said aqueous sample is placed on said strip;

f) said active electrode and said reference/counter electrode being configured so that both may be simultaneously covered by a small drop of said aqueous sample to provide an electrical conduction path between said electrodes.

3. (Once amended) The electrode strip of claim 1 wherein the co-factor dependent enzyme is glucose dehydrogenase.

B2

4. (Once amended) The electrode strip of claim 1 wherein the co-factor dependent enzyme is hydroxybutyrate dehydrogenase.

7. (Twice amended) The process of claim 5 wherein the current observed during the measurement period is linearly related to the concentration of the analyte in the sample.

B3

9. (Once amended) The process of claim 5 wherein the co-factor dependent enzyme is glucose dehydrogenase.

B4

10. (Once amended) The process of claim 5 wherein the co-factor dependent enzyme is hydroxybutyrate dehydrogenase.

Please add claims 16-29 as follows:

16. (New) The electrode strip of claim 1 wherein said R_1 or said R_2 or both said R_1 and said R_2 is substituted with at least one alkyl group.

17. (New) The electrode strip of claim 1 wherein said R_1 or said R_2 or both said R_1 and said R_2 are unsubstituted.

B5

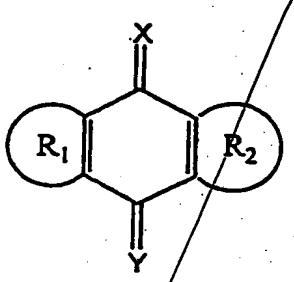
18. (New) A single use disposable electrode strip for attachment to the signal readout circuitry of a sensor system to detect a current representative of an analyte in an aqueous sample, the strip comprising:

Sub C7

a) an elongated support having a substantially flat planar surface, adapted for releasable attachment to said readout circuitry;

b) a first conductor extending along said surface and comprising a conductive element for connection to said readout circuitry;

an active electrode on said surface in contact with said first conductor, said active electrode comprising a nicotinamide co-factor-dependent enzyme, a nicotinamide cofactor, and a mediator compound having the following formula:



Sub C27 Cont'd

where X and Y can independently be oxygen, sulphur, CR^3R^4, NR^3, or NR^3R^4 or the functional group CZ^1Z^2, where Z^1 and Z^2 are electron withdrawing groups; R_1 is a six-membered unsubstituted or substituted heteroaromatic ring having nitrogen in the 1-position and R_2 is a six-membered unsubstituted or substituted heteroaromatic ring having nitrogen in the 8-position; and R^3 and R^4 can independently be a hydrogen atom, a hydroxyl group or a substituted or unsubstituted alkyl, aryl, heteroaryl, amino, alkoxyl, or aryloxyl group, wherein said active electrode is formulated with filler and binder ingredients;

B5

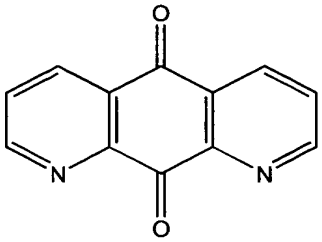
c) a second conductor extending along said surface, comprising a conductive element for connection to said readout circuitry;

d) a reference/counter electrode in contact with said second conductor;

e) said conductors being spaced apart so as not to be in electrical contact and being configured so as not to be brought into electrical contact when said aqueous sample is placed on said strip;

f) said active electrode and said reference/counter electrode being configured so that both may be simultaneously covered by a small drop of said aqueous sample to provide an electrical conduction path between said electrodes.

19. (New) The electrode strip of claim 18 wherein the mediator compound is



20. (New) The electrode strip of claim 18 wherein the co-factor dependent enzyme is glucose dehydrogenase.

21. (New) The electrode strip of claim 18 wherein the co-factor dependent enzyme is hydroxybutyrate dehydrogenase.

22. (New) The electrode strip of claim 18 wherein said R_1 or said R_2 or both said R_1 and said R_2 is substituted with at least one alkyl group.

23. (New) The electrode strip of claim 18 wherein said R_1 or said R_2 or both said R_1 and said R_2 are unsubstituted.

BS

24. (New) A process of measuring the concentration in an aqueous sample of an analyte subject to oxidation by a $NAD(P)^+$ dependent enzyme comprising the steps of:

a) providing the electrode strip of claim 18;

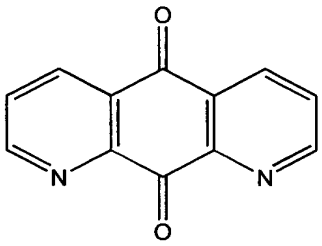
b) oxidizing the analyte with the $NAD(P)^+$ dependent enzyme in the presence of $NAD(P)^+$; oxidizing the NAD(P)H generated by reaction with the analyte and $NAD(P)^-$ dependent enzyme with the mediator compound of step a); and

c) applying an electrical potential at an electrode to reoxidize the mediator compound reduced in oxidizing NAD(P)H and observing the resultant current, wherein some of the mediator compound is being reduced by reaction with NAD(P)H while some of the mediator compound is being oxidized by transfer of electrons to said electrode during a measurement period and the rate of oxidation of the mediator compound over said measurement period and consequently the resultant observed

current is monotonically related to the concentration of analyte in the sample.

25. (New) The process of claim 24 wherein the current observed during the measurement period is linearly related to the concentration of the analyte in the sample.

26. (New) The process of claim 24 wherein the mediator component is



BS

27. (New) The process of claim 24 wherein the co-factor dependent enzyme is glucose dehydrogenase.

28. (New) The process of claim 24 wherein the co-factor dependent enzyme is hydroxybutyrate dehydrogenase.

29. (New) The process of claim 24 wherein the applied potential is 200 mV or less.

Cancel claims 6 and 12-15.